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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,854	10/13/2000	Ville Eerola	PM 274425 2000010US/KA/ko	6648

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EXAMINER

FAN, CHIEH M

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/689,854

Applicant(s)

EEROLA ET AL.

Examiner

Chieh M Fan

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 12/11/02 (PTO Paper#10) contains references listed on the IDS filed 3/27/01 (PTO Paper#5). The duplicated references have been crossed out.

Drawings

2. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "6-47" in Fig. 8 has been used to designate both the register receiving "thresh" and the register outputting "th_det". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. The applicants are reminded to make proper corrections in the specification accordingly.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In particular, the abstract of the present application contains several occurrences of the word "means"

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1-3, claim 1 recites "first storage means for storing M samples taken N received signals, wherein $N \geq 2$ and in which samples of the input signals are stored one sample at a time at the sample frequency of the input signal." As claimed, the first storage means stores the samples of N received signals and the input signals. The applicants are asked to identify which portion of the specification that supports the claimed limitation. Further, the applicants are also asked to point out which portion of specification supports the claimed "said comparator is an XOR circuit" in claim 3.

Regarding claims 4-13, each of the independent claims 4, 7 and 13 also recites a first storage means that stores samples of the received signals and the input signals. The applicants are asked to identify which portion of the specification that supports the claimed limitation. Further, the applicants are also asked to point out which portion of specification supports the claimed "said comparator is an XOR circuit" in claims 6 and 9.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “counter” in claim 10 is used by the claim to mean “squaring and summing”, while the accepted meaning is for “counting.” The term is indefinite because the specification does not clearly redefine the term. Further, the applicants are asked to point which portion of the specification teaches a counter for squaring both components of the complex correlation sample and sums up the squared component.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Tran et al. (U.S. Patent No. 5,715,276).

Regarding claims 1, 2, 4, and 5, Tran et al. teaches a matched filter for implementing the correlation of an input signal and a reference signal, the matched filter comprising (col. 22, line 26 through col. 24, line 25):

first means (134 in Fig. 6 or see 255, 256 in Fig. 16) for storing M samples taken from N received signals, wherein $N \geq 1$, and in which samples of the input signals are stored one sample at a time at the sample frequency of the input signal;

second means (131, 132 in Fig. 6 or Fig. 16) for storing K M-sample long reference signals, wherein $K \geq 1$;

multiplexing means (133 in Fig. 6 or 133 and 233 in Fig. 16) for applying one input signal and one reference signal at a time from said first and second storage means to correlation calculation means by applying alternately at least one combination of the input signal and the reference signal; and

calculation means (135, 136, 137, 139, and 147 in Fig. 6 or 235, 136, 137, 139, 147 in Fig. 16) for calculating the correlation time-dividedly for a combination of an input signal and a reference signal so that correlation results calculated from different signals appear at the output of the calculation means as a sequence, wherein the calculation comprises a comparator (135 in Fig. 6 or 235 in Fig. 16) and an adder means (136 in Fig. 6 or 16).

Regarding claims 3 and 6, the comparator comprises an XOR (see 135 in Fig. 6 or 235 in Fig. 16).

11. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki (U.S. Patent No. 5,903,595, provided by the applicants in the IDS filed 3/27/01, PTO Paper#5).

Regarding claims 1, 2, 4 and 5, Suzuki teaches a matched filter for implementing the correlation of an input signal and a reference signal, the matched filter comprising (col. 4, line 66 through col. 6, line 38):

first means (6 in Figs. 1, 2, 4, 8 and 9) for storing M samples taken from N received signals, wherein $N \geq 1$, and in which samples of the input signals are stored one sample at a time at the sample frequency of the input signal;

second means (9 in Figs. 1 and 4 or see 9, 19 in Figs. 8 and 9) for storing K M-sample long reference signals, wherein $K \geq 1$;

multiplexing means (5, 11, 15, 16 in Figs. 4, 8, 9) for applying one input signal and one reference signal at a time from said first and second storage means to correlation calculation means by applying alternately at least one combination of the input Signal and the reference signal; and

calculation means (12, 10 in Fig. 4, or see 12, 10, 21 23 in Figs. 8 and 9) for calculating the correlation time-dividedly for a combination of an input signal and a reference signal so that correlation results calculated from different signals appear at the output of the calculation means as a sequence, wherein the calculation comprises a comparator (12 in Figs 4, 8, 9) and an adder means (10 in Fig. 4 or 10, 21 in Figs. 8 and 9).

Regarding claims 3 and 6, the comparator comprises a multiplier (see 10 in Figs. 4, 8, 9).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran et al. (U.S. Patent No. 5,715,276) in view of the admitted prior art.

Regarding claims 7, 8, and 13, Tran et al. teaches the claimed invention including a first storage means, a second storage means, a multiplexing means and a calculation means (see the rationale applied to claims 1 and 4 above), but does not specifically teach a controller for comparing the correlation results generated by the matched filter with a predetermined threshold value to determine if the signal corresponding to the reference signal is found; i.e., the spreading code of the input signal is in phase with the reference signal.

However, the comparison of the correlation signal with a predetermined threshold to determine if the spreading code of the input signal is in phase with the reference signal is well known and widely used in the art. Such synchronization, i.e., in-phase,

situation is explicitly required to properly demodulate (despread) the received signals. The admitted prior art as described in the background section of the present application clearly teaches a controller (3-20 in Fig. 3 of the present application) for comparing the correlation results generated by the matched filter with a predetermined threshold value to determine if the spreading code of the input signal is in phase with the reference signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to couple the correlation results of Tran to a threshold comparator to determine if the spreading code of the input signal is in phase with the reference signal, and thereby to ensure proper demodulation of the received signal.

Regarding claim 9, the comparator comprises an XOR (see 135 in Fig. 6 or 235 in Fig. 16).

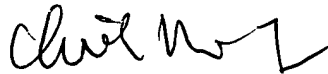
Regarding claims 10 and 11, the admitted prior art further teaches a squaring means (3-14 and 3-16 in Fig. 3) for squaring the correlation results from the matched filters and a summing means (3-18) for summing the squared correlation results.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



Chieh M Fan
Primary Examiner
Art Unit 2634

cmf
January 11, 2004